

Magneto-thermal Reconnection Processes and Tridimensional Ignition*

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A new kind of magnetic reconnection process that is associated with the presence of finite electron temperature [1] gradients on rational magnetic surfaces of an axisymmetric confinement configuration, is presented. This is relevant to regimes where the electron thermal conductivity is relatively large and the reconnection layer is smaller than the “thermal” layer where the transverse thermal conductivity plays a key role. When referring to fusion burning plasmas the excitation of the considered modes become enhanced by the nuclear heating of the electron population and the thermonuclear instability [2] can then develop more easily around closed magnetic field lines, than on non-rational magnetic surfaces. *Sponsored in part by the U.S. Department of Energy and by C.N.R. of Italy.

[1] B. Coppi, B. Basu and A. Fletcher, *Nucl. Fus.*, **57**, 7 (2017).

[2] B. Coppi and the Ignitor Program Members, *Nucl. Fus.*, **55**, 053011 (2015).